Department of Children's Services

Resource Data on Methamphetamine

The following information was gathered from the Drug Enforcement Administration (DEA), the National Institute on Drug Abuse (NIDA), Tennessee National Guard and the Koch Crime Institute.

DESCRIPTION:

Methamphetamine is a synthetic stimulant that is produced and sold illegally in the form of pills, capsules, powder, and chunks. It works by artificially stimulating the reward or pleasure area of the user's brain without causing anything beneficial to happen to the body. Methamphetamine has a high potential for abuse and dependence (addiction). The drug has an addiction rate of 80%, comparable with that of crack cocaine.

Pure methamphetamine is white, odorless and bitter tasting (although the color can range from white to brown in color.) It is sometimes packaged in tablets or capsules to resemble legal, commercial products. Users commonly swallow methamphetamine powder, sniff it through the nose or dissolve it in water and inject it intravenously. Users also smoke chunks of a very pure form of crystalline methamphetamine called "ice." While ice and "crystal meth" are chemically the same, they are structurally different. Ice is a crystalline form of methamphetamine that is higher in purity (around 97 percent pure). Crystal meth, while it is called "crystal," is usually obtained in a powder form and in varying levels of purity. Ice looks like chipped ice, rock salt or chipped glass. It is usually clear but may also be milky white or yellowish brown. While the effects of crystal meth last two to four hours, the duration of an ice-high may last anywhere from 7 to 24 hours.

Methamphetamine is known by many street names—*crank, crystal, speed, crystal meth, glass, peanut butter speed, ice, go-fast, zip, chris, cristy, go* or *meth*. It is important for child protective services staff, treatment counselors, emergency room staff, educators and law enforcement personnel to be familiar with the various street names. The localized nature of methamphetamine epidemics requires creative prevention strategies created by community-based networks. It is important that local networking occur and for communication and cooperation to be encouraged among key professionals from various disciplines to develop comprehensive strategies.

HEALTH EFFECTS/BEHAVIORS ASSOCIATED WITH METH USE:

Methamphetamine is a drug that strongly activates certain syntaxes in the brain. The effects are almost identical to cocaine. The main difference is in the sustained effects of the drug; cocaine lasts 20-80 minutes and methamphetamine lasts 4-12 hours.

It relieves fatigue, reduces the need for sleep, increases energy and confidence levels and in general brings about a psychological and physical exhilaration.

Methamphetamine is closely related chemically to amphetamine, but the central nervous system effects of methamphetamine are greater. Both drugs have some medical uses, primarily in the treatment of obesity, sometimes in cases of narcolepsy and attention deficient disorder, but the therapeutic use is very limited. Pregnant women using methamphetamine may severely damage the fetus. Underdevelopment of the brain stem of the child is the most common resulting impairment. Infants with prolonged exposure to the drug are smaller, show overall slow development, and are very illness prone.

Central nervous system effects

Increased wakefulness and physical activity

Decreased appetite at times leading to extreme anorexia

Increased respiration

*Hypothermia

Euphoria

Irritability

Insomnia

Confusion

Tremors

*Convulsions

Anxiety

Paranoia

Aggressiveness

Violent behavior

Hyperactivity

Agitation

Paranoid delusional thinking

(Violent and aggressive actions are characteristic of individuals using methamphetamine.)

**Hypothermia and convulsions may result in death.*

Possible visible physical health effects

Dilated pupils

Increased pulse rate

Injection sites if used intravenously

Body tremors

Rigid muscle tone

Increased body temperature

Teeth grinding

Dry mouth

Talkativeness

Nasal redness and/or presence of small drug particles remaining in the nostrils if snorted

Uncontrollable movements (twitching, jerking, etc.)

Impaired speech

Dry-itchy skin

Acne

Sores (may lead to severe infection)

Numbness

Methamphetamine addicts and users have been known to experience a phenomenon known as "crank bugs," that are chronic hallucinations in which they perceive insects are crawling on or beneath the skin. Individuals experiencing 'crank bugs" will often scratch and gouge at their skin until it breaks open, subjecting the body to open sores and severe infection.

Cardiovascular side effects

Chest pain and hypertension (may also result in cardiovascular collapse and death)

Increased heart rate

Blood pressure (can cause irreversible damage to blood vessels in the brain, producing strokes).

Withdrawal effects

Depression

Irritability

Mental confusion

Aggressiveness

Increased respiration

Increased heartbeat

Defective reasoning

Weight loss

Anxiety and tension

Restlessness

Increased body temperature

Increased blood pressure

Poor judgment

Dryness of lips/mouth

Decrease in energy

Difficulty in sleeping

Strong urge to use meth

Methamphetamine is a Schedule II drug under Federal regulations, meaning it has a high potential for abuse with severe liability to cause dependence. According to the Drug Enforcement Administration (DEA), methamphetamine has been the most prevalent, clandestinely produced controlled substance in the United States since 1979.

POTENTIAL DANGERS

For society, one of the most damaging consequences of methamphetamine is the degree of violence that the drug inspires. The DEA has identified four phases of behaviors associated with methamphetamine use.

Phase One: Early in methamphetamine use, people report mood elevation (euphoria, alertness and excitation). Routine tasks no longer seem monotonous; appetite is suppressed, conversation comes easily, and users feel energized, faster, and stronger.

Phase Two: As months pass, users begin to lose weight. As tolerance increases the user must dramatically increase his/her intake to recapture the initial experience and avoid depression.

Phase Three: This phase is characterized by paranoid thoughts, mistrust of people and heightened sensitivity to sound. A car door slamming across the street may lead the user to think someone is breaking into his or her home. The person is very short-tempered and agitated. An infant crying can provoke rage.

Phase Four: In the final stage of methamphetamine abuse, the user experiences a break with reality. Delusions and paranoia dominate his/her thoughts; voices and hallucinations rule his/her life.

Manufacturing Methamphetamine in Clandestine (secret) Labs

Because meth is manufactured illegally through the use of caustic chemicals and volatile solvents, there is a high potential for fire, explosion or chemical contamination. The lack of proper ventilation and temperature controls at these laboratories further compound this problem of fire, explosion and human exposure. The most likely individuals to be exposed include the "cookers" or drug manufacturers themselves as well as anyone entering or living in the home. Children living in the environment, neighbors, Children's Services staff, juvenile court staff, law enforcement officers, and home-based professionals such as visiting nurses, homemaker staff, crisis intervention, family support services workers, therapists, and others who enter the property are at risk of being exposed to dangerous chemicals.

Most clandestine methamphetamine laboratories have been located in secluded, rural areas. Although some have been found in urban areas, and in the trunks of cars/backs of vans.

Possible warning signs that a meth lab may be present include:

- Unusual, strong odors (like cat urine, ether, ammonia, acetone or other chemicals)
- Residences with windows blacked out
- Renters who pay in cash (Most drug dealers trade exclusively in cash)
- Lots of traffic - people coming and going at unusual times. There may be little traffic during the day, but at night the activity increases dramatically.
- Unusual amounts of clear glass containers being brought into the home
- A trash pile with a large amount of empty packaging of any of the identified ingredients-some might include antifreeze containers, lantern fuel cans, red chemically stained coffee filters, drain cleaner and duct tape.
- Peeled casings from lithium batteries
- Aerosol cans of starter fluid with puncture holes in the bottom
- White powder residues
- Syringes or needles

Ingredients

There are hundreds of recipes with varying ingredients for meth. Large quantities of any of the following chemicals or items may indicate that meth is being produced. Each of the products and equipment listed below have legitimate uses and separately, would

not be cause for concern. When found in combination and close proximity, notice and extra precaution should be practiced.

Iodine

Lead Acetate

Lithium Aluminum Hydride Magnesium

Mercuric Chloride Palladium

Red Phosphorus Sodium

Sodium Cyanide

Thionyl chloride

Alcohol

Ether

Benzene

Toluene/Paint Thinner

Freon

Acetone

Chloroform

Camp Stove Fuel/Coleman Fuel

Starting Fluid

Anhydrous Ammonia

"Heat"

White Gasoline

Phenyl-2-Propane

Phenylacetone

Phenylpropanolamine

Iodine Crystals

Red Phosphorous

Black Iodine

Lye (Red Devil Lye)

Drano

Muriatic/Hydrochloric Acid

Battery Acid/Sulfuric Acid

Epsom Salts

Batteries/Lithium

Sodium Metal

Wooden Matches

Propane Cylinders

Hot Plates

Ephedrine (over-the-counter) Cold Tablets

Bronchodilators

Energy Boosters

Rock Salt

Diet Aids

Chemicals needed to manufacture meth are found in the following products:

Over-the-counter cough & cold medication

Fingernail polish remover

Red Devil Lye/Drano/Liquid Fire or other drain cleaner

Camera batteries

Table salt, rock salt

Denatured alcohol

Vehicle starter fluid or spray may be stolen from a farm and is often transported in a propane gas cylinder or a beer cooler

Road flares or match heads

Iodine crystals/Water binder obtained from farm supply store

Liquid Heet - from an auto supply store

Muriatic Acid Hydrochloric Acid

Equipment that may be used in methamphetamine production include:

Glass jars or mixing bowls

Propane tanks (as used for barbecue grills) to carry anhydrous ammonia

Plastic beer coolers to carry anhydrous ammonia

Large amount of coffer filters to strain liquids

Plastic tubing or hoses

A hot plate, camp stove or electric skillet for a heat source

A turkey baster to remove liquid from the top of a jar

Additional Signs of possible meth lab

While most "cooks" prefer secluded areas, clandestine methamphetamine laboratories have been found in almost all areas of the state. Some of the signs that may indicate the presence of a meth lab are:

Smoking breaks: While going outside to smoke is in itself not an indicator, when taken with other suspicious signs it may be. Since ether is highly explosive, "cooks" will often go outside to get away from the lab before lighting and smoking a cigarette.

Chemistry equipment: Flasks, rubber tubing, and beakers similar to those used in chemistry classes may be sign that a lab is operating in the vicinity.

Strong chemical odors: Strong odors of ether and chloroform are common at meth sites. Some people have described the odor as an ammonia smell, similar to the odor of a strong cat litter box.

Containers: Chemical containers or drums with their labels removed or painted over.

Maroon residue on aluminum near the lab: Some processes for making methamphetamine do not give off the telltale ammonia odor, but the acids tend to react with aluminum in such a way that a maroon residue is left on the surface.

Containers used for purposes not originally intended: Glass milk containers or resealable glass beer containers containing unfamiliar liquids.

Unusual traffic levels: Unusual levels of foot or vehicle traffic. Individuals involved in illicit drug transaction will usually be at the purchase site for only a brief time, sometimes only a few minutes.

No visible means of income: Large amounts of cash with no visible means of support and the presence of other signs can be an indicator of illegal activity.

Unusual security precautions: Extra locks, barred windows, blacked out windows, and expensive alarm systems may be a sign of a clandestine methamphetamine laboratory.

TYPICAL RECIPES FOUND IN TENNESSEE:

The specific recipes used vary from region to region within the state. The most prevalent home recipe essentially consists of converting pseudoephedrine to methamphetamine using anhydrous ammonia and sodium metal. The ""typical"' laboratory uses ordinary beverage containers (Mr. Coffee, Thermos jug, soda containers, and large plastic cups); kitchen utensils (spatulas, stirrers, plastic bowls, etc.) and other items used in the home. Some of the chemicals used may come from local hardware stores (starting fluid, denatured alcohol, and drain opener) and small amounts would not generate suspicion. Law enforcement is working with local merchants, requesting that they notify the police when large quantities of these chemicals are being purchased. The extremely strong odor of ammonia emanating from white powder is also a telltale sign for which professionals should be aware.

WHAT TO DO IF EXPOSED TO A METHAMPHETAMINE LABORATORY:

If a DCS case manager develops reasonable suspicion of a methamphetamine operation while in the course a home visit, the case manager should take steps to conclude the visit quickly without mentioning the suspicion to those individuals present. This is especially important in light of the previously discussed effects of methamphetamine use including extreme aggressiveness, rapid mood swings and paranoia.

If children have been present in a home where a known or suspected methamphetamine laboratory was located and there is suspicion that the child was exposed to chemicals or vapors or if (s) he has any open wounds, (s) he should be immediately examined by a physician. Medical professionals need to be informed immediately of the situation and to what possible chemicals the children might have been exposed. A lead screening is recommended for these children, as high lead levels have been detected in children coming from homes containing methamphetamine laboratories. Immediately following a child’s removal from the home, he or she should be watched closely for labored breathing and headaches, for at least 48 hours. If labored breathing and/or headaches occur, the child should be taken immediately to his/her physician or to the emergency room.

Further safety measures include: washing clothes, shoes, cloth toys, etc,. in a washing machine with regular laundry detergent. The child (ren) and any adults that have had physical contact with them should wash themselves and their clothing thoroughly with soap and water. Bleach should be used to clean the bathroom or area in which the washing occurred.

If DCS staff exhibit any unusual problems after exposure to a meth lab, he or she should seek medical treatment immediately. It is very important that the doctor is made aware of all chemicals present when exposure occurred. Clandestine laboratories producing illicit drugs are operated with little or no safety precautions. Immediate dangers include fire, explosion, inhalation of harmful fumes, and skin contact with dangerous chemicals. Exposure to chemicals found in such laboratories without proper training and protection can cause cumulative, damaging effects to the body. DCS workers should leave the area immediately, or as soon as possible, if they suspect that a methamphetamine laboratory is in operation. Trained law enforcement officials, DEA agents, or specified drug task force members are responsible for entering the premises, determining if a methamphetamine laboratory is present, and escorting children out of the premises.

Hazards associated with exposure to chemicals common to meth production

(see table titled Common Chemicals)

Suggested Protocol For Assessing Medical Needs Of Children Found At Methamphetamine Lab Sites

1. A field medical assessment needs to be done to determine whether children discovered at the scene of a *Methamphetamine laboratory seizure are in need of emergency medical care.* A medically trained person must perform the assessment (e.g. EMT, PMP or PHN). If no medical personnel are available on-site the child must be seen at a medical facility. In either case, a medical assessment should be done for each child ***within 2 hours*** of discovering children at a meth lab.

    a. For children with obvious injury or illness, call 911 or other emergency number.

    b. For all children who are not obviously critical, a medically trained professional at the scene should assess:

        - Vital signs (temperature, blood pressure, pulse, respirations)
        - Pediatric triangle of assessment (**a**irway, **b**reathing, **c**irculation)

    c. For life-threatening findings, seek immediate medical attention.

    d. A child's personal possessions should always be left at lab scene to avoid possible chemical/drug contamination in other settings. ONLY in cases of gross chemical/drug contamination is it necessary to remove a child's clothing and provide clean attire prior to removing the child from the scene. (Soiled clothing remains at scene and is bagged as evidence.)

    e. If there are no pressing clinical findings, short-term shelter or other secure placement should be implemented by DCS personnel.

2. Problems requiring immediate care are those that cannot wait 24 hours to be treated at the baseline exam. Immediate care must be provided as soon as possible after significant health problems are identified. Care should be preferably provided ***within 2 hours, but not later than 4 hours***, after the child is identified at a lab site. Immediate care may be provided in a hospital emergency room, or pediatric or urgent care facility depending on the severity/urgency of the problem and the time of day. If a field medical assessment was not completed, children should be taken to an immediate care facility ***within 2 hours*** for the medical assessment.

3. The baseline assessment exam is done at a (pediatric) medical facility ***within 24 hours*** of a lab seizure to ascertain a child's general health status. Prompt medical assessment is warranted due to the risk of toxicological, neurological, respiratory, dermatological, or other adverse affects of meth lab chemical and/or stimulant exposure, and the high rate of neglect/abuse.

    a. An EPSDT exam should be completed if possible, with particular attention to neurological screen and respiratory rate.

    b. Poison control should be called if clinically indicated.

c. Required clinical evaluations

- Temperature
- Liver function tests: SGPT, SGOT, Total Bilirubin and Alkaline Phosphate
- Kidney function tests: BUN and Creatinine
- Baseline electrolytes: Sodium, Potassium, Chloride and Bicarbonate
- CBC
- Urine specimen (if not collected earlier) within 12 hours of identification of the child. Urine screen and confirmatory test results should be reported at ***any detectable level.***

d. Optional clinical evaluations

- Complete metabolic panel (Chem 20 or equivalent)
- Pulmonary function tests
- Oxygen saturation
- Heavy metals screen only if NOT ephedrine-reduction or cold-cook lab, e.g., if phenyl-2-propanone (p-2-p) was used, or if clinically indicated

e. Obtain developmental screen

f. Obtain mental health screen

4. A visit for <u>initial follow-up</u> care should occur ***within 30 days*** of the baseline assessment to reevaluate the comprehensive health status of the child, identify any latent symptoms, and ensure appropriate and timely follow-up services as the child's care plan and placement are established. If possible, the visit should be scheduled toward the end of the 30-day time frame for more valid developmental and mental health results.

5. <u>Long-term follow-up</u> care is designed to:

   a. Monitor physical, emotional and developmental health

   b. Identify possible late developing problems related to the exposure to meth, and

   c. Provide appropriate intervention. At a minimum, a pediatric visit is required ***12 months*** after the baseline assessment and permit clinical re-evaluation to compare with baseline assessment

Common Chemicals

Chemical	Description	Hazards
Acetic Anhydride	Clear liquid Vinegar odor	Vapors irritate eyes, nose and throat
Acetone	Clear liquid with sweet odor	Vapors irritate eyes and nose in high concentrations
Bromobenzine	Clear liquid, aromatic odor	Linked to leukemia
Chloroform	Clear liquid	Toxic to liver and kidneys Suspected carcinogen
Cyclohexane	Light yellow liquid with peppermint or acetone smell	Mucous membrane irritant
Benzaldahyde	Almond and cherry smell	Mild skin and respiratory irritant
Ephedrine	White crystalline substance	No major hazards
Ether	Clear liquid	Explosive **DO NOT OPEN CONTAINERS**
Glacial Acetic Acid	Clear liquid, solid at temperatures below 45 degrees fahrenheit	Skin irritant
Hydriodic Acid	Clear liquid, may turn brown when exposed to air	VERY DANGEROUS Severe respiratory irritant
Hydrochloric Acid	Clear liquid	Will burn skin
Lead Acetate	White powder, heavy vinegar odor	Will absorb through skin and destroy nerve synapsis
Mecuric Chloride	White powder	Deadly poison
Methylamine	Clear liquid, ammonia odor	Severe respiratory irritant, will burn skin on contact
Phenylacetic Acid	White crystals, urine odor	Skin irritant
Phenyl 2 Propanone	Clear liquid, turns amber when exposed to air	Unknown, assume worst possible risk

Chemical	Description	Hazards
Piperidine	Yellow liquid with soapy feel Strong ammonia odor	Strong central nervous system depressant
Sodium Cyanide	Chunky white crystal Bitter almond smell	Will form hydrogen cyanide gas if mixed with acid
Sodium Hydroxide	Powder, pellets, or white lumps, may also be a liquid	Corrosive to all tissues
Sodium Metal	Shiny silver	Ignites when exposed to water
Thionyl Chloride	Clear, yellow or red liquid with pungent, choking odor	Severely irritating to eyes, nose, and throat
Thorium Nitrate	White powder	Alpha radiation emiter